REMARKS

By the subject amendment, Applicants have amended Claims 17, 27 to 29 and 35 to correct obvious typographical errors without altering the scope of the claims. Claims 1 through 35 are presently pending herein. Claims 1, 25, 26, 29, 31 and 32 are presented in independent form.

Claims 1 through 35 have been rejected under 35 USC § 103(a) as allegedly being unpatentable over the combination of Hutchison et al. (i.e., U.S. Patent No. 6,728,486) and Liu et al. (i.e., U.S. Patent No. 6,208,443). This is the sole art rejection imposed by the Examiner. Accordingly, Claims 1 through 35 clearly recite a novel invention. Further, as pointed out below, Claims 1 through 35 also recite an unobvious invention, inter alia, because the Examiner has failed to establish a prima facie case of obviousness for at least two reasons. First, the proposed combination cannot be made as the necessary teaching, suggestion and/or motivation to combine is lacking. Rather, Liu et al. expressly teaches away from Applicants' invention. As such, Liu et al., as matter of law, cannot be used in a § 103 rejection of Applicants' invention. Moreover, even if combined, the proposed combination does render obvious Applicants' invention.

"Determination of obviousness under 35 U.S.C. § 103 is a legal conclusion based on underlying facts." *In re Kumar*, 2005 U.S. App. LEXIS 17215,*8 (Fed. Cir. 2005). "During examination, *the examiner bears the initial burden of establishing a prima facie case of obviousness*...The prima facie case is a procedural tool, and requires the examiner *to initially produce evidence to support a ruling of obviousness*. *Id.* (emphasis added)

There must be a suggestion or motivation in the prior art to modify a reference to satisfy the claimed invention. *In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "*The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.*" *Id.* (emphasis added)

It is impermissible to use the inventor's own work to find the necessary motivation or suggestion to modify a reference to satisfy the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 220 USPQ 303, 312-313 (Fed. Cir. 1983)('To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of hindsight syndrome wherein that which only the inventor taught is used against the teacher.")

The invention must be considered as a whole without the benefit of hindsight, and the claims must be considered in their entirety. Rockwell International Corp. v. United States, 147 3 F.3d 1358, 1364 (Fed. Cir. 1998)

"One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fine, 837 F.2d 1071, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988). It is impermissible to use the claimed invention as a blueprint from which to reconstruct the prior art to satisfy the claimed invention. Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 227 USPQ 543, 548 (Fed. Cir. 1985) ("From its discussion of the prior art it appears to us that the court, guided by the defendants, treated each reference as teaching *one* or more of the specific components for use in the Feil system, although the Feil system did not then exist. Thus the court

reconstructed the Feil system, using the blueprint of the Feil claims. As is well established, this is legal error.")

The prior art must be considered as a whole and suggest the desirability and thus the obviousness of making the combination. Lindermann Maschinefabrik Gmbh v. American Hoist and Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984)

"When an obviousness determination is based *on* multiple references, there must be a showing of some 'teaching, suggestion, or reason' to combine the references...Although a reference need not expressly teach that the disclosure contained therein should be combined with another the showing *of* combinability, in whatever form, must be *'clear and particular.* ", Winner International Royalty Corp. v. Wang, 202 F.3d 1340, 1348-1349 (Fed. Cir.), cert. denied, 530 U.S. 1238 (2000)(emphasis added)

"'The factual inquiry whether to combine references must be thorough and searching'...*It must be based on objective evidence of record.* This precedent has been reinforced in myriad decisions and cannot be dispensed with...The need for specificity pervades this authority...This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority...'*Common knowledge and common sense,' even if assumed to derive from the agency's expertise, do not substitute for authority when the law requires authority.*" In re Lee, 277 F.3d 1338, 1343-1345 (Fed. Cir. 2002)

"There is no suggestion to combine, however, if a reference teaches away from its combination with another source." Tech Air, Inc., 192 F.3d at 1360 (emphasis added). See also

Winner International Royalty Corp., 202 F.3d at 1349-1350 ("Second, if Johnson did in fact teach away from Moore, then that finding alone can defeat Wang's obviousness claim.")

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference would be discouraged from following the path set *out* in the reference, *or* would be led in a direction divergent from the path taken by the applicant... [*or*] if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by applicant." In re Gurley, 27 F. 3d 551, 553, 31 USPQ 2d 1130, 1131 (Fed. Cir. 1994) and Tech Air, Inc. v. Denso Mfg. Michigan Inc., 192 F.3d 1353, 1360 (Fed. Cir. 1999).

When analyzed under the foregoing legal standards, the rejection of Claims 1 through 35 based on the proposed combination of Hutchison et al. and Liu et al. cannot be sustained.

Applicants' invention as recited in Claim 1 is directed to a node comprising *a series connection of elements* E_i, *i=1,2, ...N, where N is greater than 1, forming a first optical path, where each of said elements* E_i *injects an optical signal of band* λ_i, *and where* λ_i *is disjoint from* λ_j *for all* $i \neq j$. The node also includes a series connection of elements F_i, i=1,2, ...N, forming a second optical path, where each of said elements F_i extracts an optical signal of band λ_i. A plurality of transmitters T_i, i=1,2, ...N, are coupled to said elements E_i *on a one to one basis*. Further, a plurality of a receivers R_i, i=1,2, ...N, are coupled to said elements F_i *on a one to one basis*.

The Examiner asserts that elements 232 and 234 in Figure 13 A of Hutchison et al. satisfy the claim limitation "*a series connection of elements* E_i, *i=1,2, ...N, where N is*

greater than 1, forming a first optical path, where each of said elements E_i injects an optical signal of band $\cdots_i$ and where $\cdots_i$ is disjoint from $\cdots_j$ for all $i \neq j$." However, as is readily evident from Figure 13 A reproduced below, elements 232 and 234 are not connected in series:

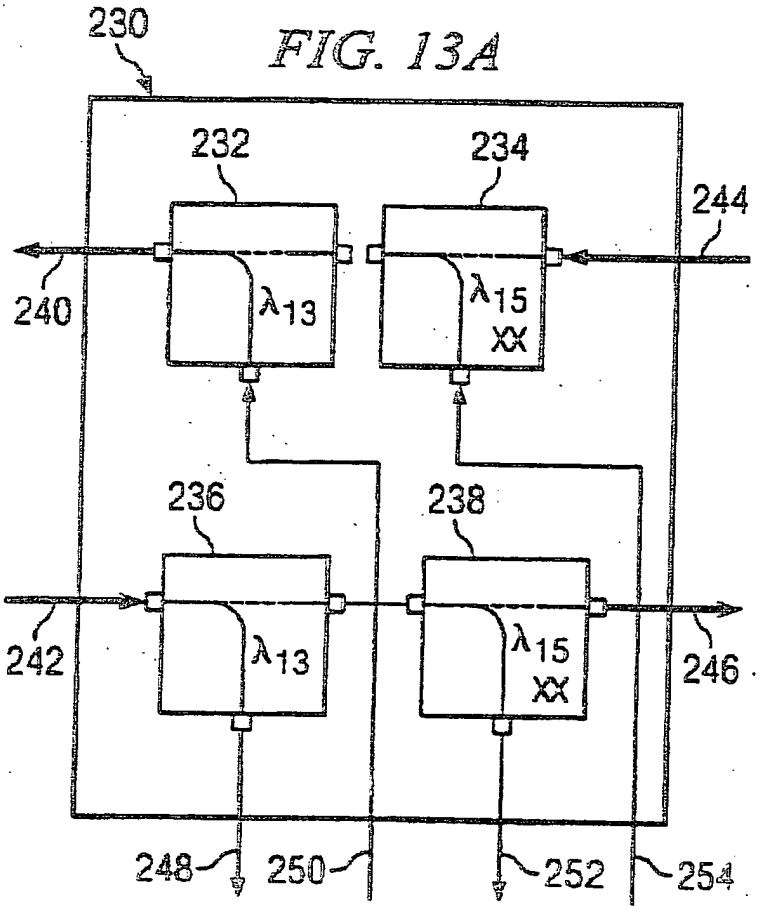

FIG. 13A

Specifically, no serial connection is provided between element 232 and 234 as any connection between these elements is absent. The lack of a serial connection between elements 232 and 234 should be compared to the connection of elements 236 and 238. The lack of a serial connection in Figure 13 A is by design in order to allow a fiber to be terminated. (See Hutchison et al., col. 10, lines 31 to 34) Notably, Liu et al. fails to supplement this critical deficiency in Hucthison et al. For this reason alone, the proposed

combination does not anticipate or render obvious Applicants' invention as recited in Claim 1 even if the legally flawed combination is made.

Further, the Examiner concedes that Hutchison et al. does not expressly or inherently disclose a plurality of transmitters coupled to the plurality of signal injecting elements on a one to one basis or a plurality of receivers coupled to the plurality of signal extracting elements on a one to one basis. However, the Examiner contends that such would be obvious in view of Liu et al. In particular, the Examiner relies upon Figure 11 of Liu et al. which is reproduced below:

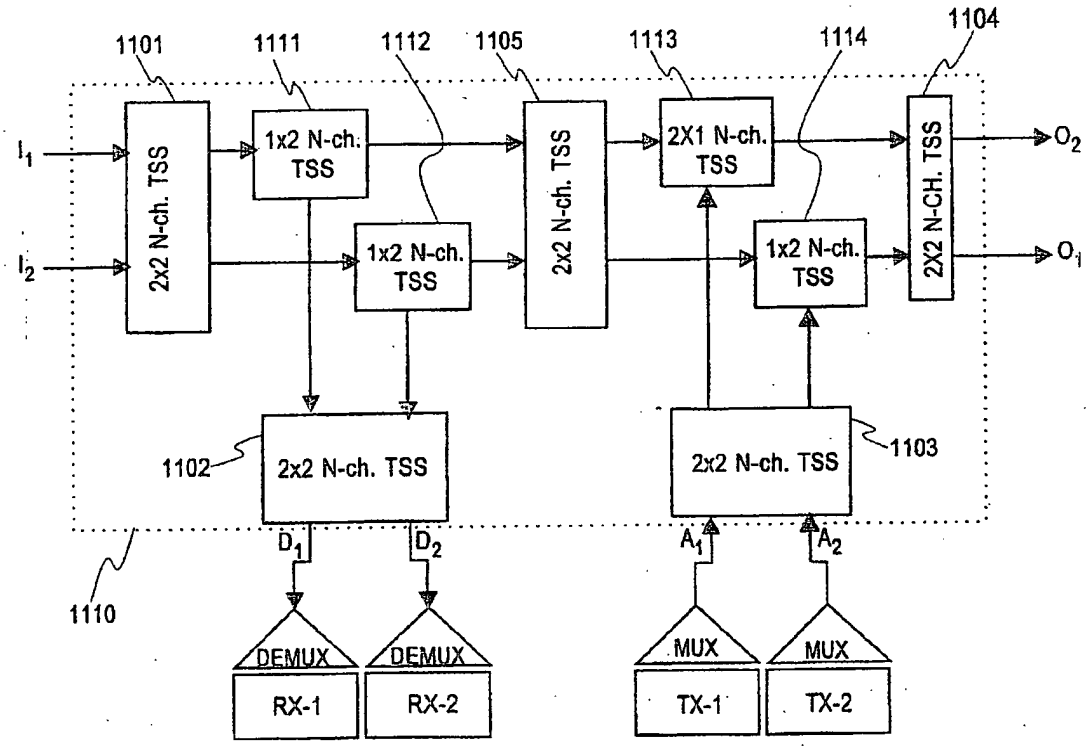

Fig. 11

As is readily evident from Figure 11, *Liu et al. expressly teaches away from the present invention by orienting the group of elements 1111 and 1112 as well as the group of elements 1113 and 1114 in a parallel fashion. This teaching in Liu et al. is directly opposite to Applicants' invention.*

It is impermissible, as a matter of law, to include Liu et al. in a combination under 35 USC 103 to reject Applicants' invention as Liu et al. would lead one of ordinary skill in the art in a direction directly opposite of Applicants' invention. In re Gurley, 27 F. 3d at 553 ("A reference may be said to teach away when a person of ordinary skill, upon reading the reference would be discouraged from following the path set *out* in the reference, *or* would be led in a direction divergent from the path taken by the applicant... [*or*] if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by applicant."). See also Tech Air, Inc., 192 F.3d at 1353.

Moreover, it would be counterintuitive to the thinking of one of ordinary skill in the art to modify Hutchison et al. to utilize *twice as many receivers and transmitters* than necessary. Rather, one of ordinary skill in the art would use a single transmitter to transmit multiple signals having different wavelengths to save on cost and reduce the complexity of the node. Certainly, one of ordinary skill in the art would not be motivated to do so by the teachings of Liu et al. of a system that is the opposite of Applicants' invention. This is especially true as Liu et al. does not explain how twice as many transmitters or twice as many receivers will benefit the system of Hutchison et al. such that one or ordinary skill in the art could ignore the inherent and significant implications of cost and structural complexity of the node.

Simply put, the proposed combination does not render obvious Applicants' invention as is fails to teach or suggest various aspects of Applicants' invention. Further, Liu et al. cannot be used in the combination as it expressly teaches away from Applicants' invention. Moreover, there is no *clear and particular* teaching, suggestion or motivation to combine Liu et al and Hutchison et al. As such, Claim 1 patentably defines over the proposed combination.

Claims 2 through 24 depend directly or indirectly from Claim 1 and, therefore, are allowable for similar reasons. Further, these claims recite additional features that patentably distinguish Applicants' invention from the prior art. Applicants respectfully submit that the Examiner has failed to provide sufficient evidence to establish a prima facie case of obviousness of any of Claims 2 through 24. On the contrary, the Examiner has made repeated allegations that lack any evidentiary basis in the record.

Applicants' invention, as set forth in Claim 25, is directed to a node *comprising a first series connection of N elements, where N is greater than 1, forming a first optical path, where each of the elements in said first series injects an optical signal of a preselected band of wavelengths*, and where bands of wavelengths of the different elements in said first series are disjoint from each other. The node also includes a second series connection of N elements, forming a second optical path that is disjoint from said first optical path, where each of the elements in said second series extracts an optical signal of a preselected band of wavelengths, and where bands of wavelengths of the different elements in said second series are the same as the bands of wavelengths of the different elements in said first series. *The node further includes a plurality of transmitter elements. Each one of said transmitter elements is coupled to a different one of said N*

elements in said first series connection of N elements. A plurality of receiver elements are provided at the node. Each one of said receiver elements is coupled to a different one of said N elements in said second series connection of N elements.

The proposed combination of Hutchison et al. and Liu et al. must fail for similar reasons to those outlined in connection with Claim 1. Neither Hutchison et al. nor Liu et al. satisfy in the context of Claim 25 the recitation "*a first series connection of N elements, where N is greater than 1, forming a first optical path, where each of the elements in said first series injects an optical signal of a preselected band of wavelengths.*" Elements 232 and 234 in Figure 13 A of Hutchison et al. are not connected in series. This is readily evident from the lack of any connecting line extending between elements 232 and 234. As previously explained, the lack of a serial connection is by design. Specifically, module 230 in Figure 13 A is designed to terminate a fiber. (See Hutchison et al., col . 10, lines 31 to 34) Further, Liu et al. expressly teaches away from Applicants' invention and, as such, cannot be used in any combination attempting to render Claim 25 obvious. Finally, there is no teaching, suggestion or motivation to combine Hutchison et al and Liu et al. when one of ordinary skill in the art would most assuredly recognize the cost savings and simplicity of node structure gained by using a single component rather than multiple components.

Applicants' invention, as recited in Claim 26, is directed to an arrangement comprising a first module that includes: a) an add-in port that leads to a set of elements that add an optical signal of a first wavelength; b) an add-out port that outputs an optical signal from said set of elements that add an optical signal; c) a drop-in port that leads to a set of elements that extract an optical signal of said first wavelength, and d) a drop-out

port that outputs an optical signal from said set of elements that extract an optical signal. The arrangement also includes a second module that includes: a) an add-in port that leads to a set of elements that add an optical signal of a second wavelength; b) an add-out port that outputs an optical signal from said set of elements that add an optical signal; c) a drop-in port that leads to a set of elements that extract an optical signal of said second wavelength; and, d) a drop-out port that outputs an optical signal from said set of elements that extract an optical signal. The arrangement further includes connection elements that optically connect the add-out port of said first module to the add-in port of said second module, and the drop-out port of said second module to the drop-in port of said first module.

The Examiner makes numerous assertions that it would be obvious to modify Hutchison et al. to satisfy Applicants' invention as set forth in Claim 26. However, the Examiner has failed to provide any evidence to support these assertions. Applicants note that the Examiner bears the burden of establishing a prima facie case of obviousness that clearly has not been met in this case. Further, the Examiner contends without any supporting evidence that two modules of the type disclosed in Figure 13A can be connected as specified in Claim 26. First, nowhere does Hutchison et al. ever teach or suggest that two modules of the type disclosed in Figure 13A would ever be connected together let alone in the specific manner set forth in Claim 26. This is particularly true where the module of 13A is designed to terminate a fiber. In short, there is no evidence to support any assertion that Claim 26 is obvious in view of Hutchison et al. Further, Liu et al. does not supplement the critical deficiencies in Hutchison et al. Accordingly,

Applicants respectfully request that the rejection of Claim 26 be withdrawn as the necessary predicate for an obviousness rejection is lacking.

Claims 27 and 28 depend directly or indirectly from Claim 26 and, therefore, are allowable for similar reasons. Further, these claims recite additional features that patentably distinguish Applicants' invention from the prior art. Each of these claims recited third and fourth modules and detail the manner of connection of these modules. None of these features are taught or suggested by Hutchison et al. and/or Liu et al. Hence, Applicants respectfully submit that the Examiner has failed to provide sufficient evidence to establish a prima facie case of obviousness of either of Claims 27 or 28. The rejection of these claims should be withdrawn.

Claim 29 is directed to a node that includes a first sub-node and a second sub-node. The first and second sub-nodes each include a plurality of elements connected in series where each of the elements injects an optical signal. As previously explained, Hutchison et al. does not teach or suggest this feature. Rather, elements 232 and 234 are not interconnected by design. Moreover, there is absolutely no teaching or suggestion to connect two of the modules depicted in Figure 13 A of Hutchison et al. as required by Claim 29 especially in view of the fact that the module in Figure 13 A terminates a fiber. Notably, nowhere does Hutchison et al. teach or suggest connecting two modules of the type illustrated in Figure 13A. The Examiner's reliance on Liu et al. is erroneous for the reasons previously stated. Accordingly, Applicants respectfully submit that Claim 29 patentably defines over the proposed combination.

In alleging that Claim 31 is obvious, the Examiner is again asserting that elements 232 and 234 are connected in series. Figure 13A of Hutchison et al. clearly

illustrates no such connection. Further, the corresponding portion of the Specification of Hutchison et al. confirms the lack of a serial connection. (See Hutchison et al., col. 10, lines 31 to 34). Moreover, the Examiner is attempting to connect two modules of the type depicted in Figure 13 A without any teaching, suggestion or motivation for such a connection. Notably, the Examiner does not point to any passage in Hutchison et al. allegedly teaching, suggesting or motivating such a connection. Finally, the Examiner's reliance on Liu et al. is misplaced for the reasons previously stated. Accordingly, Claim 31 patentably defines over the prior art.

Claims 32 through 35 recite the physical spatial relationship between the add ports and the drop ports. The benefits of these physical spatial relationships are discussed in the Specification in detail including but not limited to paragraph 22. Notably, the Examiner has not addressed the clear benefits set forth in the Specification regarding the claimed spatial relationship between the add and drop ports. Claim 32 requires that no port be positioned between the add-in port and the drop-out port of the first module. The claim further requires that no port be positioned between the add-out-port and the drop-in port of the first module. Hutchinson et al. does not teach or suggest Applicants' invention as recited in Claim 32. As seen in Figure 13 B of Hutchison et al., a number of ports are physically positioned between the add ports and the corresponding drop ports. Hence, Hutchison et al. is at direct odds with the claimed invention. Notably, the Examiner has not addressed Figure 13 B of Hutchison et al. Further, there is no teaching, suggestion or motivation for modifying Hutchison et al. to satisfy the claimed invention. Applicants respectfully submit that Claim 32 patentably defines over the proposed combination.

Claims 33 through 35 depend directly or indirectly from Claim 32 and, therefore are allowable for similar reasons. Moreover, these claims recite additional limitations that patentably distinguish the claimed invention from the prior art.

Applicants respectfully submit that the subject patent application is in condition for allowance. Hence, Applicants request that the subject patent application be passed to issuance without delay.

It is believed that no fees are due. However, should that determination be incorrect, the Commissioner is hereby authorized to charge any deficiencies to Deposit Account No. 50-0562 and notify the undersigned in due course.

Respectfully submitted,

Date: 2/14/06

James J. Merek
Attorney for Applicants
Reg. No. 32,158

MEREK, BLACKMON & VOORHEES, LLC
673 South Washington Street
Alexandria, Virginia 22314
(703) 684-5633